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AUTHOR Clifford, Richard M.; Gallagher, James J.

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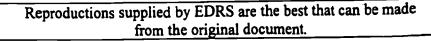
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ABSTRACT

This brief discusses research showing that high-quality early childhood programs can sharply improve readiness for school, especially for children who are at risk of school failure. The brief describes North Carolina's creation of the "More at Four" pre-kindergarten program and discusses research on important issues and potential barriers to the implementation of a successful pre-kindergarten program. These include service delivery, personnel, cost, program curriculum, program length, supplemental services (children with special needs and transportation), and program support systems (technical assistance and data systems). (Contains 24 references.) (EV)





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Richard M. Clifford James J. Gallagher

North Carolina Education Research Council

November 2001

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First in America Special Report: Designing a High Quality Pre-Kindergarten Program

s a part of their commitment to making North Carolina's schools *First in America*, the Education Cabinet set the goal of ensuring that every child in North Carolina begins school ready to learn. Under the leadership of Governor Mike Easley, the North Carolina General Assembly recently approved the creation of the *More at Four* pre-kindergarten program to advance this goal.

More at Four and other pre-kindergarten programs are designed to serve the substantial proportion of children who enter school without the skills necessary to succeed (West, 1998; Zill et al., 2000). For example.

- Approximately one-third of children are unable to recognize letters;
- Only one out of five children can recognize two digit numbers;
- Teachers report that twenty-five percent (25%) of beginning kindergartners are never or only sometimes eager to learn (Zill & West, 2001).

A disproportionate number of these children come from families dealing with a variety of special risks and challenges - low family income, a lack of parental education, and a native language other than English (Maxwell et al., 2001, Zill & West, 2001). Children in these at-risk families have less exposure to the basic language and math skills necessary for success in kindergarten (Hart & Risley, 1995). As a result, many of them enter school behind their classmates and never catch up. Experts estimate that as many as 40,000 of North Carolina's entering kindergartners may be at risk of school difficulties (More at Four Task Force Report. 2001).

Research conducted in North Carolina and across the nation has shown that high quality early childhood programs can sharply improve readiness for school, especially for children who are at risk of school failure (*Eager to Learn*, NRC, 2001). Yet reports indicate that most early childhood services are simply not of the quality required to provide the needed boost (CQO, 1995; Whitebook et al., 1997).

In light of this evidence, both North Carolina and the federal government have made dramatic increases in funding for early childhood services, but two problems remain - high quality early childhood programs are difficult to find and even more difficult to afford. Parents continue to bear the largest share of the considerable costs of child care (Mitchell, Stoney, & Dichter,

2000). And while all families may struggle to find high quality programs. low- to moderate-income families are at an even greater disadvantage.

Many other states have also recognized the potential of state-supported pre-kindergarten programs to help solve these persistent problems. State pre-kindergarten programs typically offer cost-free or low-cost, high quality early childhood educational experiences for children in the year or two years before they enter kindergarten. These programs have the clear educational purpose of preparing children for entry into the state education system. Recent reports estimate that nationwide more than 750,000 4-year-olds were in state-supported pre-kindergarten programs in the 1999-2000 school year. Several states, including Georgia, Wisconsin, and New York, are moving toward universal access to pre-kindergarten programs. And at least 34 states-have some form of state-funded pre-kindergarten initiatives (Saluja, Clifford, & Crawford, 2001).

EXISTING RESEARCH ON PRE-KINDERGARTEN PROGRAMS

Research on the effects of early childhood interventions confirms that high quality programs focused on the specific goals of improving intellectual growth and language ability do achieve positive results (*From Neurons to Neighborhoods*, NRC, 2000: Guralnick, 1997).

- The Cost, Quality: and Child Outcomes study found that children in high quality child care programs entered school with decided advantages in language, math, and social skills over children from lower quality programs (CQO, 1995).
- High quality early childhood programs have proven even more beneficial for children at risk of school failure than for other children (Eager to Learn, NRC, 2001).
- Preliminary reports of a large-scale study by the National Institute for Child Health and Human Development (NICHD) indicate that children who attend early childhood education centers prior to school entry develop better skills and knowledge than children without access to such programs. And despite press reports that children in these programs for 30 or more hours per week show somewhat higher levels of aggression than children in little or no child care, the levels of aggression found in this study appear to be in line with levels of aggression normally found in children of early school age (Society for Research and Development, 2001).

By Richard M.
Clifford & James
J. Gallagher,
Frank Porter
Graham Child
Development
Center, University
of North Carolina
at Chapel Hill

Elizabeth K. Cunningham, Editor

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Research specifically on pre-kindergarten programs also shows significant benefits for children in these programs.

- In one of the best documented pre-kindergarten programs the Perry Preschool Program — researchers found both shortand long-term benefits for children who participated in the program for one or two years (Schweinhart et al., 1986).
- In early reports from the evaluation of Georgia's statewide pre-kindergarten program, kindergarten teachers reported that children who attended pre-kindergarten were better prepared to begin school than were other children (Henderson, Basile, & Henry, 1999).
- One of the best studies of a large-scale pre-kindergarten program the New York Experimental Pre-Kindergarten
 Program has shown significant gains for the children in
 the program as compared to a similar group of children not
 in the program (Gilliam & Zigler, 2000).

Overall, research provides substantial support for high quality early childhood programs as a means of preparing children, especially at-risk children, for school (*Eager to Learn*, NRC, 2001). In its report, *Neurons to Neighborboods*, the National Research Council (2000) concludes that high quality early intervention has been shown conclusively to be successful. They warn, however, that such interventions are rarely simple, inexpensive, or easy to implement.

THE DESIGN AND IMPLEMENTATION OF PRE-KINDERGARTEN PROGRAMS

Existing research and the experiences of other states point to several important issues and potential barriers to the implementation of a successful pre-kindergarten program. As North Carolina embarks on the design and implementation of the *More at Four* program, these should be considered carefully.

Service Delivery

Instead of providing pre-kindergarten exclusively in the public schools, many states rely heavily on the use of existing private sector child care programs to provide pre-kindergarten services. The *More at Four* program contemplates a similar arrangement. North Carolina already faces a burgeoning school-age population and a shortage of available school facilities. It would be virtually impossible to accommodate all 40,000 *More at Four* students solely in the public schools.

Facing similar shortages of public school facilities, New York and Georgia currently provide pre-kindergarten services to approximately sixty percent (60%) of their students through private sector programs. In addition to lessening the burden on overcrowded school facilities, this public-private partnership has alleviated the fear of many private sector programs that state-funded pre-kindergarten would harm or even bankrupt their programs.

There is no specific research that addresses the relative merits of private versus public sector programs. Research on early childhood programs does indicate that it is the quality of the program — the training of staff, class sizes, the adequacy of funding, the specification of clear educational goals, an appropriate curriculum, and well-designed classroom practices — that determine the impact of a program on its students. One way to assure adequate quality is for the state to enact strict requirements and controls over all programs receiving *More at Four* funding.

Personnel

Numerous studies have confirmed that well-trained caregivers are one of the most important elements of high quality early childhood education. Well-trained caregivers — those with adequate formal education and specialized early childhood training — generally provide more appropriate educational experiences, care, and discipline for children. In order to be most effective, it appears that pre-kindergarden teachers must possess at least a bachelor's degree in a related field (e.g. psychology, social work, etc.) and have on-going access to professional development and other technical assistance regarding the educational and social development of young children.

Like many other states, North Carolina already faces a severe shortage of teachers. Finding an ample supply of licensed teachers to meet the additional needs of a state prekindergarten program will present an even greater challenge. In the 1999-2000 school year, only nine percent (9%) of North Carolina's kindergarten teachers held a teaching license that required extensive training on the developmental characteristics of children from birth to age six. And the institutions of higher education responsible for providing this preparation report that several factors - a limited number of faculty members prepared to teach early childhood education, budget constraints, and low salaries for their graduates - make it difficult to produce more teachers. Low compensation and career advancement opportunities also limit the number of individuals interested in pursuing early childhood training (Gilliam & Ripple, in press).

Although they face similar barriers, most other states have instituted formal requirements that preschool teachers must hold a bachelor's degree with specific training in early childhood education. Yet in reality, these requirements are not often met. Georgia and New York continue to struggle to provide fully qualified staff for every classroom. In both cases, classes operated by school districts were somewhat more likely to have certified teachers; but it is important to note that these school-based programs had more financial resources than other providers to pay competitive salaries and provide benefits to teachers.

Some key features of bigh quality early childhood programs:

- Well-qualified teachers usually with a bachelor's degree.
- 2. Low child-to-staff ratios — usually 15 to 18 children with 2 adults.
- Adequate funding to pay standard teacher salaries and to provide appropriate facilities, equipment, and materials.
- 4. A clearly articulated curriculum with specific program goals.
- Classroom practices appropriate to the age and development of each child.

The experience of these states demonstrates the importance of ensuring that all participating pre-kindergarten providers have the resources necessary to attract qualified personnel. Yet even this will not guarantee an adequate supply of pre-kindergarten teachers. Additional efforts and resources will be required to bring more personnel into the field. The federal government played a major role in increasing the number of trained personnel working with children with disabilities. They may be called upon again to do more to boost the supply of well-prepared early childhood teachers.

Cost

There is some debate about the level of per child expenditure necessary to fund a high quality pre-kindergarten program. The *Bright Beginnings* program in Charlotte and some similar full-day (six hour) programs report a per child cost of between \$6,000 (basic operating costs) and \$8,000 (including supervision, space and overhead expenses). The Georgia pre-kindergarten program reports expenditures of under \$5,000 per child.

Reported costs of existing programs vary widely because of differences in personnel requirements and salaries, student services, funds provided for facilities, equipment, and materials, overhead expenditures, reporting practices, the use of a variety of sources of financial support, and many other factors. These differences make it difficult to compare costs and benefits across programs and to determine the level of funding necessary to allow for program success.

In a recent survey, Raden and McCabe found that available state funds are rarely sufficient to embark on a universal pre-kindergarten program (Ripple, 2000). Many state pre-kindergarten programs rely on a combination of state, local, and federal funds to fully support their efforts. And most states concentrate their efforts first on at-risk students and later on a wider universe of children. As North Carolina and other states develop pre-kindergarten programs, it will be important to continue to evaluate the level of funding required, the most efficient use of scarce resources, the best methods of accessing and using funds from a variety of sources, and the most effective means of targeting children most in need of assistance.

Program Curriculum

Two recent reports by the National Research Council and the Institute of Medicine of the National Academy of Sciences (2000 and 2001) offer recommendations regarding what children should be taught and learn in the early years. They urge adoption of a pre-kindergarten curriculum that focuses on language development, literacy, mathematics, and science. Both reports also recommend that the curriculum place equal emphasis on the development of social and emotional skills, such as problem solving, cooperative play, self-control, and the ability to work well with adults and other children. To be successful in helping pre-schoolers develop both academic and social skills, preschool programs must translate these broad goals into specific, well-defined objectives.

Program Length

Both full-day and half-day programs have been shown to be effective when the programs are of high quality, have targeted goals, and receive adequate financial support. Because the vast majority of working parents have full-time employment, full-day programs are often needed. Many full- and half-day pre-kindergartens also supplement their standard program by operating for longer days or making extended care available for an additional fee.

Supplemental Services

Many state pre-kindergarten programs offer a variety of supplemental services to children and directly to their families. These services are costly because they require additional resource staff, counselors, speech and language specialists, social workers, medical personnel, family specialists and other specialized personnel. Yet they may be necessary to meet the needs of at-risk children who often come from families with extremely limited resources. As North Carolina implements *More at Four*, it will be important to evaluate the contribution of these services to the success of our students and to consider the most cost efficient ways to offer them.

Children with Special Needs

The federal Individuals with Disability Education Act (IDEA) requires that supplemental services must be provided to children with special needs. The IDEA also requires that children with special needs be served within the mainstream educational program whenever possible. While only four percent (4%) of children are formally identified as having special needs prior to school entry, one can expect the percentage of identified children in a program for at-risk students to be substantially higher.

North Carolina's pre-kindergarten programs will face two substantial obstacles in meeting the unique needs of identified at-risk children. First, national surveys of teachers indicate that less than one in five feels well prepared to cope with special needs children (NCES, 1999), and there is no reason to believe that the proportions are different in North Carolina. Second, many of the special needs children in North Carolina are learning English as their second language. Yet the state faces a severe shortage of teachers with knowledge of Spanish or other languages (Maxwell et al., 2001). As North Carolina moves forward with the design and implementation of the *More at Four* program, it will be important to provide the additional training necessary to overcome these obstacles.

Transportation

Another important barrier to early childhood education for working families is transportation. Gallagher and his colleagues found the lack of available transportation to be a major obstacle for state pre-kindergarten programs. First, children ages three and four are not capable of traveling alone safely on traditional school buses. Second, the "at risk" children most in need of pre-kindergarten services are often from families least able to provide their own transportation. Third, many pre-kindergarten programs offer half-day services. These programs have found mid-day transportation to be costly and difficult to staff. And finally, even programs operating on a more traditional school day schedule present challenges to

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transportation planners as they try to fit the special needs of young children into a system designed for older children (Gallagher et al., 2001). These factors make transportation a complex and expensive concern. Yet it may be an essential service if at-risk children are to be reached.

Program Support System

Little exists in the way of an infrastructure to support dramatically expanding pre-kindergarten programs (Gallagher & Clifford, 2000). Yet the provision of training and technical assistance to these programs and the creation of a data system to support research on their efforts may be key to their future success. Not only is it important to build up the state's capacity to provide high quality pre-kindergarten services through training and technical assistance based on what is already known, but because too little is yet known about this new level of educational service, the eventual success of the program may also depend upon the development and use of new knowledge coming directly out of North Carolina's own experience.

Technical Assistance

Ongoing technical assistance programs provide a regular source of expertise, advice, and consultation needed by pre-kindergarten policy and program staff (Kagan & Neville, 1993). Two well-established federal programs, Preschool Programs for Children with Disabilities and Head Start, have developed assistance programs that can serve as a model for state pre-kindergarten programs. The National Early Childhood Technical Assistance Program (NECTAS) has provided ongoing technical assistance and support to preschool programs for children with disabilities for thirty years. The federally funded NECTAS Program supports both state planning efforts and day-to-day program operations at the local level. The federal Head Start program has established a similar support network.

Given the growth in pre-kindergarten programs across the country, the creation of a consolidated state or federal assistance network may be sensible. In the absence of such a program, individual states will need to develop internal support centers for their pre-kindergarten educators. Such centers have been most helpful when staffed by master teachers and experienced early childhood administrators.

Data System

In an age of accountability, the success of new programs is often evaluated and funding is often allocated on the basis of available program data. Thus a comprehensive and accurate data system is a critical component of a developing educational program. The data system developed to support North Carolina's pre-kindergarten program will need to be able to answer many questions, including:

- How many children are being served?
- Is the program reaching the intended population?
- · How many teachers are currently needed?
- What is the current level of teacher preparation?
- How many children have been saved from potential school failure?

In his survey of state programs, Gilliam (2001) found that it was exceedingly difficult to gather accurate data even on measures such as the number of children enrolled in pre-kindergarten programs when services are delivered through a mix of public and private agencies. Without close attention to the development of a comprehensive data system, these and many other questions that are key to program success will remain unanswered.

In light of this concern, the legislation creating the *More at Four*Program requires the development of a system to gather and coordinate operational and student data. This system will also be compatible with the Student Information Management System used to maintain student data in the public schools.

The North Carolina More at Four Program

In the spring of 2001, Governor Easley convened a Task Force led jointly by the Departments of Health and Human Services and Public Instruction to make recommendations for the design and implementation of the *More at Four* program. The Task Force was asked to examine many of the issues and potential barriers to program success discussed above.

Members of the Governor's Task Force recommended that the *More at Four* program rely on a variety of existing public and private service providers to offer students a full-day educational experience designed to enhance their readiness for kindergarten. Toward this end, all *More at Four* program providers would be required to adopt one of several approved curricula. Further, the Task Force strongly recommended that classes not exceed eighteen (18) children and that each class be led by a teacher certified or specially trained in early childhood education and a teacher's assistant.

The Task Force estimated costs of between \$6,000 and \$8,000 per child and recommended the provision of at least an additional \$8,000 per classroom to cover initial start-up costs. Estimated operating costs include teacher salaries, administrative personnel and overhead expenses, resource staff and consultants, instructional materials and equipment, staff professional development, family involvement activities, transportation and meals for students, and custodial services.

The Governor has stated that he would like the *More at Four* program to begin operating with a limited number of students in January of 2002 and to expand to serve all of the estimated 40,000 unserved or underserved at-risk children in North Carolina.

Legislation authorizing More at Four directed the Departments of Health and Human Services and Public Instruction to establish a Task Force to oversee the development and implementation of the program. This Task Force will begin meeting in November of 2001 and will issue the final guidelines for the operation of More at Four.



CONCLUSION: THE DEVELOPMENT OF EFFECTIVE PRE-KINDERGARTEN PROGRAMS

High quality pre-kindergarten programs do not develop by accident or coincidence. They require a centrality of purpose and considerable support from many sources to gain acceptance. In addition to carefully considering the design and implementation issues raised above, a recent five-state study demonstrates the importance of several features common in the states in which successful pre-kindergarten programs have been enacted (Gallagher et al., 2001).

- Each of these states had strong political leaders governors, legislators, and powerful public citizens — actively involved in the effort to implement pre-kindergarten programs.
- Each state began the program with an emphasis on children at risk of school failure.
- Each state included the pre-kindergarten program in a larger package of education reform.

- Major efforts were made by each state to bring together the various stakeholders in early childhood programs (Head Start, child care, young children with disabilities, etc.) to collaborate on the design and implementation of the programs.
- An emphasis on high quality standards helped each state to gain a broad base of public support.

North Carolina is joining a number of states in developing and piloting its new pre-kindergarten program. As is true with other complex endeavors, it will be vital to set clear and attainable goals, closely monitor implementation, and build in evaluation mechanisms from the program's inception. There is considerable evidence that, with these safeguards, pre-kindergarten programs can greatly improve many children's chances for success in school and later life.

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Morth Carolina Education Research Council
Post Office Box 2688
Chapel Hill, Morth Carolina 27515-2688
Telephone: 919.843.8127
Email: fia@northcarolina.edu
Website: firstinamerica.northcarolina.edu

